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# **Communicable Diseases, Gender, and Equity in Health**

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## GLOBAL HEALTH EQUITY INITIATIVE

### COMMUNICABLE DISEASES, GENDER, AND EQUITY IN HEALTH

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July 1999

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## **GLOBAL HEALTH EQUITY INITIATIVE**

The working papers in the series on "Gender and Health Equity" arise from two workshops held at the Harvard Center for Population and Development Studies in 1997 and 1998. The workshops were organized as part of the Global Health Equity Initiative (GHEI), a comprehensive project on health equity funded in part by the Rockefeller Foundation and the Swedish International Development Agency. The GHEI is an interdisciplinary project that combines conceptual work on health equity with country-case studies. Other conceptual working groups, similar to the Gender and Health Equity project, are focussing on cross-cutting issues like "measurement", "ethics", and "social determinants". Some of the working papers within this series on Gender and Health Equity will appear jointly in a volume edited by Gita Sen, Pirooska Ostlin and Asha George.





Communicable diseases remain the most common cause of death in the world today. Of the 34 million deaths worldwide in 1993, an estimated one-third, or 10.6 million, resulted from infectious and parasitic diseases (WHO, 1995). In Sub-Saharan Africa, communicable diseases account for over 70% of the burden of ill health in contrast to about 10% in industrialized countries (The World Bank, 1993).

Despite the arrival of diagnostics, drugs, pesticides and vaccines that have been developed during this century, medical researchers and practitioners have struggled against an ever-growing number of

## ABSTRACT

The taxonomies for organizing medical and social science thinking about communicable diseases have left out gender considerations, while the outmoded stereotypes used in communicable disease research, prevention and control tend to presume that gender is understood. This paper provides a framework for thinking about gender and communicable diseases. It begins by providing definitions of these diseases and a brief overview of recent historical influences and current tendencies in dealing with such diseases. It then turns to examine the influence of gender on the health-illness-care process in relation to communicable diseases. It is a framework for thinking about the impact of gender on the likelihood of contracting, and the experience of living with, these diseases is proposed. The article concludes with reflections as to how gender stereotypes continue to dominate communicable disease research and control, hampering advances in health equity and efficacy of health programs.

Theories of infectious disease causation. And while epidemiologists point to a "lack of causation" (Krieger, 1996) that attributes the persistence of infection to the interaction between the agent, the host and the environment, the emphasis continues to be on disease processes rather than on the socio-cultural context of disease origins. Communicable disease experts tend to focus exclusively on the biological mechanisms through which disease operates when they develop their interventions; rarely do they consider that vision to include an examination of the political, social and economic conditions that explain why a disease occurs in the first place.

Yet failure to recognize systematically that the persistence of communicable diseases in the world today is rooted in structural inequality may continue to undermine costly investments in disease and address disease prevention. The major structural impediment to the elimination of infectious diseases is poverty: the greatest risk regardless of a person's age, sex or race. And there is little doubt that chronic hunger is one contributor, creating a vicious circle. A recent study conservatively estimates that the poorest 20% of the global population experience 47% of deaths worldwide that result from communicable and related diseases (Gavett and Collins, 1994). Moreover, if one considers that women constitute approximately 70% of the poor, then the interaction between poverty and gender may represent the most important risk factor to be addressed in efforts to avert communicable diseases (WHO, 1995). However, the recognition that structural inequality and gender inequality must be addressed to curb the growth of emerging and re-emerging diseases will require a shift in the thinking and practical medical and social sciences.

The purpose of this chapter is to examine one aspect of this new change that must occur. Medical





## INTRODUCTION

Communicable diseases remain the most common cause of death in the world today. Of the 51 million deaths worldwide in 1993, an estimated one-third, or 16.4 million, resulted from infectious and parasitic diseases (WHO, 1995). In Sub-Saharan Africa, communicable diseases account for over 70% of the burden of ill health in contrast to about 10% in industrialized countries (The World Bank, 1993). Despite the arsenal of diagnostics, drugs, pesticides and vaccines that have been developed during this century, medical researchers and practitioners continue to struggle against an ever-growing number of emerging infectious diseases, such as HIV and Hepatitis C. Furthermore, drug resistant strains of familiar diseases, among them malaria and tuberculosis, render powerless former effective drugs such as chloroquine and multidrug therapy.

Why is it that despite over a century of concerted efforts on the part of rich and poor countries alike, we appear to be unable to sustain a successful response against long-standing, emerging and re-emerging diseases? In searching for reasons, one that surfaces is that communicable disease research, surveillance, prevention and control efforts have been dominated by biomedical and individually focused theories of infectious disease causation. And while epidemiologists point to a "web of causation" (Krieger, 1994) that attributes the presence or absence of infection to the interaction between the agent, the host and the environment, the emphasis continues to be on disease processes rather than on the socio-structural roots of disease origins. Communicable disease experts tend to focus exclusively on the biological mechanisms through which disease operates when they develop their interventions; rarely do they broaden their vision to include an examination of the political, social and economic conditions that explain why a disease occurs in the first place.

Yet failure to recognize systematically that the persistence of communicable diseases in the world today is rooted in structural inequality may continue to undermine costly investments to discover and address disease processes. The major structural impediment to the elimination of infectious diseases is poverty, the greatest risk regardless of a person's age, sex or race. And there is little doubt that these diseases in turn exacerbate poverty, creating a vicious circle. A recent study conservatively estimates that the poorest 20% of the global population experience 47.3% of deaths worldwide that result from communicable and related diseases (Gwatkin and Guillot, 1998). Moreover, if one considers that women constitute approximately 70% of the poor, then the interaction between poverty and gender may represent the most important risk factor to be addressed in efforts to arrest communicable diseases (UNDP, 1995). However, the recognition that structural economic and gender inequality must be addressed to curb the growth of emerging and re-emerging diseases will require a sea change in the thinking and practice of medical and social sciences.

The purpose of this chapter is to examine one aspect of the sea change that must occur. Medical



and social scientists must take seriously considerations of gender,<sup>1</sup> its interaction with physiological/immunological factors, and how the outcome of that interaction can protect men and/or women from communicable diseases, or, conversely, place them at risk. Interventions in communicable diseases must be planned with cognisance of the way in which gender influences the degree to which men and women, as individuals and population groups, have access to and control of the resources needed to protect their own health and that of family and community members. Finally, those involved in communicable diseases, whether they are working in control of vectors, vaccine and drug development, improvement of surveillance and monitoring systems or as health care workers in disease endemic countries, must be mindful that gender structures the way they assess the problem. Gender affects the research questions they ask, the way they examine the data and the manner in which they treat the male or female client coming to the health center. Gender is more than a variable to be manipulated; it is an organizing principle of society (West, 1993).

To include a gender perspective in communicable disease thinking and practice will not be an easy shift. The disciplines that today rule the world of infectious diseases are grounded in a biomedical perspective characterized by a reductionist and narrowly technical approach. However, there is an increasing recognition on the part of those that adhere to such thinking that their horizons need to be widened beyond the molecular level, to include behavioral and social aspects of individuals and population groups. What remains barely acknowledged by medical and social scientists is the fact that individuals and populations are either men or women, and that this distinction is of critical importance in addressing communicable diseases. Likewise, the influence of gender on institutional structures and scientific and technical paradigms needs much more critical reflection.

This chapter provides a framework for thinking about gender and communicable diseases. It begins by providing definitions of communicable diseases and a brief overview of recent historical influence and current tendencies in dealing with these diseases. It then turns to examine gender and the health-illness-care process in relation to communicable diseases, proposing a framework for thinking about the impact of gender on infectious diseases and illustrating its use through examples. The chapter concludes with reflections as to how gender stereotypes continue to dominate communicable disease research and control, hampering advances in health equity and efficacy of health programs.

## DEFINITIONS

Biological agents ranging from microscopic, intracellular viruses to large, structurally complex helminthic parasites cause communicable diseases.<sup>2</sup> They are called communicable because their spread involves an infected agent that transmits the organism through a variety of mechanisms including insects,



person-to person contact, air, water, contact with animals and their products, and contact with blood and blood products. New microorganisms capable of causing disease in humans continue to be detected, and whether or not these develop into a public health threat depends on factors related to the microorganism and its environment, or the infected human and his/her environment (Cook, 1988).<sup>3</sup>

*Emerging communicable diseases* result from newly identified and previously unknown infections that cause public health problems either locally or internationally. The most important of these to date is human immunodeficiency virus (HIV) which causes AIDS. Another previously undetected virus, Hepatitis C, was identified in 1989. Today it is the most common cause of post-transfusion hepatitis worldwide and affects approximately 3% of the world's population. *Re-emerging infectious diseases* include those diseases already known that become renewed public health problems because they become resurgent, by either becoming more widespread or more resistant than before. Rift Valley fever and yellow fever are examples of re-emerging diseases (WHO, 1998).

The motivation to invest talent, time and financial resources to arrest the spread of infectious diseases did exist prior to the current threat of emerging and re-emerging diseases, as will be evident in the next section. However, there is today a new sense of urgency to do something about these diseases. Knowledge of emerging and re-emerging diseases, as well as the nature of their repercussions in light of the expansion of international travel and the global processing, handling and distribution of food, has increased dramatically in the last decade. The realization that the globalization of the economy is contributing to the rise and spread of infectious diseases and the fear that the momentum of these complex forces will not abate, has galvanized a multi-sectoral response from the international development community. The dynamics spawned by economic globalization include *inter alia*, the increasing growth of urban areas and slums as agricultural workers drift to cities attracted by urban opportunities, or squeezed out by the consolidation of landholdings for large scale agribusiness encouraged by trade and investment liberalization policies. The growth of slums has exacerbated infectious disease risks due to contaminated drinking water, airborne pollution in the form of dust particulates, illegal dumping of garbage and wastes, unsanitary removal of domestic sewage, and crowded housing. Globalization's emphasis on open markets and free trade zones has generated a need for mobile and cheap labor, breaking down traditional systems of economic protection, cultural norms and social support networks. As markets expand and government roles and regulations lessen, social obligations are more likely to be shirked.

The challenges presented by communicable diseases several centuries ago may in retrospect appear far less complex. Yet the manner in which these diseases were addressed then lay the foundation for the difficulty now being encountered in expanding the epidemiology of infectious diseases to include non-biological aspects. A brief look back through recent history in the next section will provide a useful



perspective on the major factors that have driven the communicable disease research and control agenda.

## LOOKING THROUGH THE PAST AT THE PRESENT

Existence of communicable diseases dates back to ancient times. For example, paleopathologists have established the presence of schistosomiasis in ancient Egypt. Medical historians have documented the impact on civilizations of infectious diseases such as malaria, typhoid, cholera and the plague (Inhorn and Brown, 1997). McNeill presents convincing evidence showing that infectious diseases have played a major role in cultural transformations as societies have responded to the disruption from malaria to AIDS (McNeill, 1976).

For purposes of this historical review, consideration will be given to communicable diseases over the past 300 years. By examining briefly the historical evolution of the direction taken by leaders in communicable disease research, prevention and control, insights can be gained as to why the current focus is grounded in a "contaminationist" approach which tends to reduce individuals and population groups to molecular phenomena. It also can provide some indication as to why there is a strong tendency to ignore structural aspects of disease origins such as poverty and gender inequity.

Examination of historical documentation leaves little doubt that from the seventeenth century onwards, the quest for economic and political power has driven the expansion of research and development in public health. Examples from the British Empire provide insights into how the fact that English "sailors and gentlemen" (Balfour and Scott, 1924), as well as those from other European nations, setting out to inhospitable lands, stimulated the search to eliminate communicable diseases from colonial territories.

According to Balfour and Scott, authors who chronicle the development of a health consciousness in the British Empire, the earliest known work in England on tropical diseases written in 1596 was concerned with ships and sailors (Whitstone, 1596). As British citizens settled for different reasons in Africa, Asia and the Americas medical efforts focused on safeguarding expatriates from communicable diseases. "The first concern is the future of the white race...can the Europeans persist as an active, healthy, virile race in these uplands, propagating their species and fulfilling their destiny? ... Is it possible for them to engage in out-of-door manual labour and to follow those pursuits which in the tropics usually fall to the lot of the black and coloured races of mankind?" (Johnson, 1827).

For Great Britain, as for other European powers, the health of black Africans (or Indians) became an economic necessity with the recognition by the white colonizers that natives were "the chief asset of their countries", the backbone of economic exploitation activities (Freemantle, 1911). At best, motivations to improve public health in the colonies were driven by paternalistic considerations. As



suggested by Balfour and Scott by stating the "enormous responsibilities which a power like Great Britain shoulders when she extends her territories to Africa. She stands in *loco parentis* to the black races, and the first and foremost duty of a parent is to safeguard the health of those who look to him for sustenance and protection" (Balfour and Scott, 1924, p. 111).

Paternalism and economic motives led to frustration of colonizers with the seeming natives' disinterest in promoting their own health, although the latter's use of non-Western healing practices was widespread then, as it is now. "It is useless to preach the value of the open window at night to a West Indian who lives in terror of 'duppies', just as it is well nigh hopeless to expect some Hindu to grasp the significance of germ theory of communicable disease while he remains saturated with superstitions and worships strange deities from whom he believes sickness and death emanate" (Balfour and Scott, op cit, 387).

Paternalism and domination likewise characterized the empire's perspective on women, whether white or black. Balfour and Scott speak of the "malign influence of great heat and bright light most especially on the white woman" (Balfour and Scott, op cit p. 235), and Dr. James Christie records that "native society create(s) a nuisance under the very windows of European houses where European ladies are resident" (Christie, 1876, p 110). With respect to the African women, the first authors stress the "need for maternity training centres and instruction in child welfare and mothercraft. These are entirely new ideas to the native mind. (However) the natives multiply with extreme rapidity.... if a fair percentage of the children were saved there would be sufficient population for the needs of the Protectorate... but without the ample native labour the cotton trade is doomed" (Cristie, op cit, p 113).

In the latter half of the 20th century the domination of colonizers over colonized ceased and the public health agenda for communicable diseases evolved. The overt imperialism and paternalism illustrated in the examples above have dissipated. The agenda is no longer dictated by colonial powers and health scientists and policy makers from disease endemic countries in Africa, Asia and the Americas play leading roles in its formulation. However, there remain today other less obvious forces that transcend the boundaries of nation-states and influence the directions being taken in addressing communicable diseases. These forces are still driven by self-interest and are global in nature.

One of these forces is the important economic activities of multinational corporations and their increasing flows of foreign direct investment (UNESCO, 1998).<sup>4</sup> It is safe to say that the fortunes of these corporations are not as dependent on the health of cheap labor in disease endemic countries as were those of the European colonizers of recent history. Yet a growing number of them are involved in the developing world, and a broad basis of enlightened self-interest may exist for stronger multinational support of work on communicable diseases. Tapping this interest becomes ever more critical as public sector coffers and international aid flows diminish worldwide. Amongst multinationals a special target



sector coffers and international aid flows diminish worldwide. Amongst multinationals a special target group of concern is the pharmaceutical companies. Their involvement in developing, testing and marketing new drugs and vaccines to address communicable diseases that affect developing countries has been decreasing since the late 1970s (Behrman, 1980). Companies respond to market forces and these are weakest in the poor communities of disease endemic countries. Thus new inducements must be found to revive pharmaceutical company involvement.

A more powerful force galvanizing global action today in communicable diseases is the element of fear. Media images of the horrors of Ebola and the widespread reality of HIV/AIDS has lent credence to the fact that both rich and poor now find themselves in "a single disease pool" (McNeill, 1976). Three of the six reasons given by the National Academy of Sciences for U.S. interest in reducing the incidence of tropical disease are related to the need to protect U.S. populations (National Academy of Sciences, 1987), including the country's armed forces overseas. It seems that the motivations for U.S. involvement in research and development in infectious diseases bear a strong resemblance to those that sparked the interest of its mother country at the height of the British Empire.

Fear and anxiety on the part of the public health sector in industrialized nations coupled with socio-economic and political concerns on the part of governments of disease endemic countries have resurrected a sense of urgency about the need to address communicable diseases. Threats of environmental changes and increased drug resistance of the vectors themselves support the gravity of the spread of age-old diseases. New energies have been marshaled to the global health stage, heightening awareness of the need to "make a difference".<sup>5</sup> The outcome of this renewed intensification faces enormous challenges if it is to succeed. These challenges emanate as from the complexity of the "biology of the bugs" (Brown, 1997) that are emerging and reemerging in a changing biophysical environment (Kettel, 1995).<sup>6</sup> This complexity is further compounded by the tendency of health researchers and practitioners, especially those that have inherited mechanistic and/or militaristic approaches to disease prevention and control,<sup>7</sup> to ignore the fact that *people* are affected by infectious diseases, and that it is the poor that are the most affected.

The growing proportion of the poor in industrialized and developing countries are at greatest risk of dying from communicable diseases. The irony is that while health leaders may use the age-old fear tactic to inspire the better off to contribute to public health efforts to address infectious diseases, there is very little probability that those who enjoy material comfort and social acceptance will ever die from these diseases<sup>8</sup>. Structural inequality, of which gender is a critical element, is at the heart of the issue of infectious disease emergence and spread.

Communicable disease experts historically and currently have shied away from addressing the socio-structural causes of these diseases. In the days of colonial expansion, approaches to infectious



disease research, prevention and control were directed at ensuring a healthy "human capital" base. Economic self-interest depended on workers whose labor produced profits for colonial powers within a framework of structural inequality. Today, with the predominance of the biomedical model and the compartmentalization of knowledge, health researchers and those involved in prevention and control have failed to incorporate the role of structural inequality in establishing connections between "risk" factors and health outcomes. Many of them acknowledge this failure, but the resource gap between those affected by infectious diseases and those who are "risk-free" is overwhelming and beyond the scope of a biomedical focus. Thinking about what creates health is far more difficult than dealing with parasites, viruses and body parts. There is safety in specialization and narrow approaches. But the problem will never be addressed as long as the simple and safe are sought. As Levins has recently noted, "effective analyses of emerging diseases must recognize the study of complexity as perhaps the central general scientific problem of our time" (Levins, 1995).

Part of the complexity that must be addressed involves the interaction between gender, race, social class, and infectious disease. The next section of this paper examines how one of these socio-structural components, gender, influences the prevention and control of communicable diseases.

## **GENDER- A COMPARATIVE CONSTRUCT**

Gender is a comparative construct that refers neither to men nor women in isolation, but rather to the relations between them and how these are socially constructed. In addition, gender is institutionally structured, as it refers not only to the relations between individuals at the personal level, but to a complex array of values and norms that permeate organizational systems and social structures, such as the health, legal and religious system (Hartigan, 1997, 1998). Gender is a fundamental organizing principle of society that is modified by time, culture and socioeconomic status.

While the literature reveals that both poor men and women suffer greater ill health than their more well off counterparts, it also indicates that ill health and/or the illness of family members generally represent greater burdens for poor women in comparison to poor men. This is because in addition to the resource constraints that affect the poor in general, there are gender inequalities and inequities that can place women in particular at a further disadvantage. The reasons for this are multiple, and involve the interplay of the following factors:

- In all cultures, ethnic and age groups, men and women are assigned different roles and responsibilities. This assignation shapes the development of different skills and abilities and channels their application to specific life spaces or spheres of activity



- It is usually those skills and abilities, and the spheres of activity associated with masculine constructs that are more valued than those associated with feminine constructs.
- This differential value has direct implications for the level of access to and control of resources available to men and women to protect their health, and the health of their families.

In sum, socially constructed characteristics that are attributed to one sex or the other at the individual level, or that are associated with male or female spheres of activity at the societal level, give rise to gender inequities and inequalities. They also perpetuate gender stereotypes that can enhance or deter the health and development of men and women, as individuals and as population sub-groups.

The ways in which gender can affect health are insidious. For example, gender exercises a powerful influence on identity formation that, in turn, affects health in significant ways. The child's first concept of the self is that of a gendered self. While both sexes are subject to externally-imposed, culturally-specific gender norms that constrain what they should or should not do or feel, the norms that place almost all women in a subordinate position in relation to men set self-imposed limits on women's own hopes and aspirations (Gilligan, 1992).<sup>9</sup> On the other hand, a social definition of manliness that emphasizes risk-taking, bravado and aggressiveness can lead to higher morbidity and mortality from accidents, violence and cirrhosis, for example. Thus, gender can differentially affect women and men's health promoting behavior.

This deep-rooted character of the gendered self is not yet taken into account by communicable disease research and control experts even though the stumbling blocks they face in addressing infectious diseases are largely gendered in nature. The hurdles they face include how to: improve access to and use of early detection, diagnosis and treatment. Achieving client compliance with treatment means facilitating relevant health information; working with health providers on the periphery of the health system; amongst other factors. Among the questions frequently asked by those responsible for different infectious diseases are: How can female access to TB case detection be improved? How can mothers' compliance with anti-malarial treatment for their children be increased? How can men be persuaded to assume more responsible sexual behavior? How can women's ability to negotiate condom use with male sexual partners be strengthened? What can entice men to assume more active roles in ensuring the health of their children? The conclusion one draws from these questions is that despite existing profilactics, diagnostics, drugs or vaccines that can help prevent and control many of the diseases from which people die, we are still stymied when it comes to getting poor men and women to use or enable others to use what is available to them.



However, there are no quick fixes to fashioning gender-sensitive interventions in communicable diseases. Even if TB case finding for women were to be aggressively pursued, even if anti-malarials were to be packaged so as to be readily understood, even if assertiveness training and condoms were to be provided to women, and so on, the chances of influencing behavior in the desired ways may be disappointing. One only needs to turn to the example of food distribution within households for insights as to why this outcome is probable. The link between malnutrition and risk and/or exacerbation of infectious diseases has been amply supported in the research literature on leishmaniasis, tuberculosis, malaria, and HIV/AIDS, amongst other diseases. In most societies, particularly among the poor, women are the last to eat and when they do they serve themselves and their girl children the smaller portions in comparison to what they serve to male family members. Despite investments made in designing nutrition messages that emphasize female requirements for iron rich foods in households where financial constraints limit purchase of such foods, women will invariably serve men and boys the one or two portions of meat, fish, eggs or poultry available. Yet women themselves purchase those foods and prepare them. They have the access to and control over the resource and yet systematically self-impose limitations to the benefits derived from proper nutrition.

The above example suggests how the relative value placed in a society on being male or female may have important implications for the health of women and men. For women, the fact that their role is less valued has a negative impact on their self-esteem and the image that they transmit to their own daughters and sons of what women and men are 'worth'. Thus, women may see self-health promoting and maintaining behaviors as either selfish, or as being important only because of their role in the service of other family members.

Gender also affects men's health-seeking behavior. For example, studies in Latin America indicate that sick men are reluctant to use primary health clinics, which they view as appropriate only for mothers and children. Men in some settings may also be less likely to comply with medical directives if they feel that by complying they relinquish control in any way. Finally, men may be reluctant to admit any illness if by so doing they become dependent on family members whom men have been socialized to care for and sustain (Pittman, 1997). Men may disregard their own health for gendered reasons as do women, bowing to male stereotype as providers and workers, the backbone of the family.

It is not that efforts have not been made in acknowledging the role of social and behavioral factors. Much has been done and written about the cultural aspects of infectious diseases. But most of the emphasis has been on understanding "culture" or "context" so as to find ways of stimulating human agency to promote and protect individual or family health. In most settings where poverty is prevalent, the degree to which individual behavior and "health beliefs" can be summoned to improve access and compliance are significantly compromised by forces beyond individual control (Farmer, 1996). The



tendency to emphasize individual responsibility for health is compatible with medicine's focus on individuals and its concern with identifying causes of disease so that treatment, relief of suffering and rehabilitation is simplified. "Strenuous insistence on the causal role of culture or personality in explaining treatment failures runs the risk of conflating cultural (or psychological) difference with structural violence, leading to... immodest claims of causality...*Throughout the world, those least likely to comply are those least able to comply* (author's italics) (Farmer, 1997).

There is a final aspect of gender that must be highlighted in a discussion on communicable diseases. Because gender is institutionally structured it exercises an important influence on health care providers' perceptions of male or female clients' needs and on the manner and substance of the medical advice they provide to male or female clients. In the area of health education, as in prevention and promotion interventions as well, messages often reinforce gender stereotypes. Many of these stereotypes operate to the detriment of healthy behavior. The lenses that health scientists and providers wear are independent of their own sex. Rather, they are dependent on the dominant influence that envelops them throughout their development as persons and professionals. As has been discussed, modern scientific medicine is based on a mechanistic, until recently always male, view of the human body that can be analyzed in terms of its parts like a car. Although there is today wider recognition that such approaches are not sufficient, medical education, indeed, education in general, still does not adequately train students to think beyond disease and hence to think about wellness and people, much less about male and female people.

## **THE IMPACT OF GENDER ON COMMUNICABLE DISEASES**

The principle that underlies the need for gender analysis in health is the concept of equity. A prerequisite for attaining equity in health is acknowledging that different groups have different needs. A gender analysis in health contributes to equity because it provides the concepts and methods whereby these needs can be identified and addressed.

Identifying these needs is a prerequisite in designing gender-sensitive interventions in communicable disease research, prevention and control. To ensure equity, interventions must also avoid creating or maintaining gender stereotypes that damage mental and physical health. The next section presents a framework for thinking about the impact of gender on communicable diseases.

The model below attempts to capture the complex and dynamic health-disease-care process. While contracting infectious diseases is a function of the interaction of the biological and the social, the experience of the illness/disease is more socially determined. For example, biology may interact with social influences to exacerbate the risk for TB for women at certain points in their life cycle. However, the experience of TB infection or disease is determined by a woman's access to timely detection and







Finally, while most infectious diseases are shared by men and women, to date much of the research that has been conducted on sex specific aspects of infectious disease have focused on women's biological reproductive function, specifically the fetus or potential fetus she carries. Little has been done to examine the impact of exposure to infectious diseases on women in their own right across their life span. Nor has this been done for men. Thus, we still have very little knowledge of the *sex specific* aspects of infectious diseases other than those that relate to women's reproductive systems during childbearing years.

The examples below illustrate the impact of gender on the risk of contracting and on the experience of infectious diseases. These are presented in order of public health importance.

## TUBERCULOSIS

Tuberculosis is the biggest infectious disease killer in women and the one with the greatest burden of disease for both sexes worldwide. In 1997, TB killed 3 million people, approximately half of whom were women (WHO, 1998). Individuals who are HIV positive have a relative risk of developing TB of between 2 and 100 times higher than those who are HIV negative (Murray, 1990). A number of studies indicate that prevalence of HIV infection among smear positive TB cases is higher in females (Holmes et al, 1998).

TB has a *different natural history* in women and men. Women between the ages of 15 and 40 are almost twice as likely to progress from infection to disease than men of the same age, and men are more likely to progress from infection to disease after age 40. One frequent explanation, now discounted, has been the stresses of pregnancy and possible breakdown of immune resistance, which make women more susceptible (Styblo, 1991). Other reasons include the lower prevalence of infection in women during and after adolescence, making women more likely to be newly infected during their reproductive years. Newly infected persons have a greater chance of progressing to disease than those with an older infection (Holmes, op cit).

Case-fatality rates likewise seem to be greater in women (Holmes, op cit). Reasons for this include decreased immune function due to poor nutritional status and delays in care seeking, both a function of gender. The low status accorded to women in most societies, their limited decision-making ability and access to health resources place them at a particular disadvantage in comparison to infected men. The influence of gender on surveillance and monitoring is evidenced by the consistent finding that more women are detected through active than passive case finding. On the other hand, gendered behavior associated with masculinity such as alcohol abuse and smoking may account for the higher progression rates found among older men.

Treatment of TB also has gendered implications. The widely acclaimed method of Directly



Observed Treatment-short course (DOTS) has been successful in some areas with some populations, and not so in others. Little has been done to examine the gendered aspects of compliance with DOTS. Men reportedly are less inclined to comply with any indications if these require curtailed alcohol consumption. Moreover, often it is women who are charged by the health provider with ensuring that their male partners comply with DOTS, as with other health prescriptions. Whereas when women are infected men are less likely to assume a similarly supportive role.

## **SEXUALLY TRANSMITTED DISEASES (STDs)**

An estimated 333 million curable STD cases occur globally every year, mostly in developing countries, and STDs rank among the top five conditions for which adults seek health care services (Special Programme on Research and Training in Human Reproduction, 1997). The majority of these, among them, syphilis, gonorrhea and chlamydia,<sup>10</sup> are bacterial. The first two are on the rise in developing countries. If one includes virally-caused STDs, such as the human immunodeficiency virus (HIV), herpes and human papilloma virus (HPV), STDs collectively constitute one of the major global causes of death and disability. Information on the epidemiology of bacterially-induced STDs in developing countries is practically nonexistent. In order to elucidate the impact of gender, the following section will examine two STDs that are virally-induced.

Perhaps no infectious disease has received as much attention from so many diverse publics and disciplines as HIV and its manifestation, AIDS. At the end of 1998, there were estimated to be 33.4 million people living with HIV/AIDS, about 19.2 million males and 14.2 million females. In terms of new cases, an estimated 2.4 million females and 3.4 million males were newly infected in 1998 (UNAIDS, 1998).

While AIDS has been the focus of concern for almost twenty years, it has been only in the last five years that medical and social scientists began to focus on women other than female sex workers. Research attention now has sought to understand why women constitute 40% of the new cases of infections worldwide. What has been found is that the interaction between female biology and gender place women in double jeopardy.

Biologically, there are several reasons for women's greater risk. First of all, HIV needs live cells in order to be transmitted. The body fluids richest in cells are the most infectious. As a result, semen is more infectious because it has greater cellular content than vaginal fluids. Second, the epithelial quality of the vaginal mucous membrane is more vulnerable to infections than the penis; third, semen remains in the vaginal or rectal tract for a longer period than do vaginal fluids on the penis. As a result, women's exposure time to the virus is greater in heterosexual relations.



Finally, age and sex interact to place women at even greater risk. Women under 18 and those after menopause are more susceptible than women of reproductive age. This is because the vaginal mucous membrane in young women does not acquire a cellular density that acts as an effective barrier until after 18 years of age. After menopause, the vaginal mucous membrane becomes thinner and weaker and is more vulnerable to HIV. Lastly, prevalence rates of other STDs are greater in women than men, which increases the risk of HIV infection through heterosexual relations. In many cases, such STDs are asymptomatic in women, which impedes early detection and timely treatment.

The second STD examined in this section is the human papilloma virus (HPV). Various types of HPV have been implicated as causes of cervical cancer, the first major tumor to be shown to be virally induced. Cervical cancer is the most common cancer found in women in the developing world, with 300,000 deaths globally each year. About half a million new cases are detected annually and an estimated 2 million women currently live with invasive cervical cancer (WHO, 1996).

However, if detected in an initial asymptomatic stage, it is nearly always curable by surgery or radiotherapy. Women most at risk are those who are poor, have had multiple births, have initiated sexual activity at an early age, and have had multiple sexual partners or male partners who have multiple sexual unions. A study in Thailand indicated that among women whose husbands first had sex with a prostitute in their teens and who did not use condoms at that time, the risk of cervical cancer was twice that of women whose husbands have never visited a prostitute (Thomas et. al, 1996).

For both HIV and HPV, biology alone does not explain either the incidence of HIV in women or the persistence of mortality and morbidity among women associated with HPV. A gender perspective allows a greater understanding of how women's risk and experience of such disease may be accentuated. Gendered factors that exacerbate risk for these STDs, and for STDs in general, include social tolerance of male promiscuity, social assignment of greater value to what is masculine and the positive social support for female passivity and self-denial. Other factors influenced by gender include the lack of open communication between partners, women often being inhibited from inquiring about the sexual habits of their partners, lacking the assertiveness to insist on condom use, and having to assume faithfulness. Male rejection of the condom, prohibitions on access to sex education and contraceptives, including condoms, and an emphasis on fidelity and virginity for women are additional gender aspects of many societies that place women at increased risk (Restrepo, 1994).

For all STDs, institutionally structured gender inequities can also constitute risk factors. Because poor women often must seek men to help them support their family multiple unions are common placing them at risk for STDs. As with TB, once ill women with HIV or cervical cancer are likely to be abandoned by their male partners, placing women in a worse situation. In the case of HPV, health systems are poorly equipped to conduct cytology coverage that can detect pre-cancerous lesions,



especially in rural areas. When positive cases are detected women lack the resources to access proper treatment. The lack of priority accorded by national leaders to cervical cancer, as to other causes of female morbidity and mortality, casts suspicion on the degree of importance attached to saving women's lives. In the case of other STDs, women may suspect that they have a STD but not seek care because of the associated social stigma. This stigma does not exist in many societies for men, where having an STD is an indication of sexual prowess and masculinity (Zacarias, 1998).

## MALARIA

Every year, malaria kills between 1.5 and 2.7 million and adversely affects a further 300,000 to 500,000; 90% of these cases occur in Africa (WHO, 1998). No information disaggregated by sex is available at this time.

However, it is known that malaria has *different consequences* for men and women. Malaria during pregnancy is an important cause of maternal mortality, spontaneous abortion and stillbirths. Particularly during pregnancy, malaria contributes significantly to the development of chronic anemia. Effective malaria chemoprophylaxis throughout pregnancy has been shown to prevent or clear placental infection with *P. falciparum*, the malarial parasite. However, recent evidence indicates that chemoprophylaxis in pregnancy is hindered by a number of constraints: the increasing frequency and intensity of resistance of *P. falciparum* to the available antimalarial drugs: the relative contraindication of certain antimalarial drugs during different stages in pregnancy, and poor compliance. These constraints have led to difficulties in identifying an appropriate drug or combinations to be used for pregnant women. In addition, recent evidence suggests that placental *P. falciparum* infestation may be associated with poorer survival of infants born to HIV-1 positive mothers (WHO, 1998).

Whereas biology is largely responsible for aggravating the severity of the consequences of malaria for women, gender colors the experience of women at risk and suffering from the disease. In Africa, where the problem is greatest, infection co-exists with extreme poverty, malnutrition, and poor access to antenatal and other health care services. Some studies find that women with malaria are more likely than men to delay treatment due to lack of time or childcare arrangements (Tanner and Vlassoff, 1998). Women's multiple gender roles include work related to maintenance of the home and the support of family members, whether or not they are sick.

Health interventions that seek to reduce malaria in endemic areas actively seek out women to ensure that family members, particularly infants and young children, are protected from the disease. For example, insecticide-impregnated bednets have been found to effectively protect household members from malaria in endemic areas, spurring control programs to find ways to induce women, not men, to wash and impregnate the nets. Likewise, efforts to train mothers in the detection and early intervention



of fevers in their children often fail to take into account that women may not control the resources needed to seek anti-malarials or bednets. Malaria prevention programs, similar to others in disease control, are often oblivious to the multiplicity of tasks women in resource poor situations juggle, and may inadvertently exacerbate gender inequity and women's sense that the only reason they are valued is as mothers and care-givers.

## TROPICAL "ORPHAN" DISEASE CLUSTER

Schistosomiasis, leishmaniasis, onchocerciasis, lymphatic filariasis, Chagas disease,<sup>11</sup> African trypanosomiasis and leprosy are diseases unknown to people in the developed world, but these continue to inflict considerable suffering and death amongst poor populations in developing countries. As with almost all infectious diseases, prevalence rates between and within the sexes vary according to the roles and responsibilities assigned to men and women in their respective biophysical environments. Exposure to a given disease may be common for both sexes but are affected significantly by age, race, income level, and occupational category. On the other hand, even when men and women in the same cohort group share similar economic and social situations, their physiological structures may respond to the same hazard in different ways. How the sexes respond differently to similar risks warrants much more research.

Schistosomiasis results from infection with schistome trematode worms transmitted by one of several species of water snail. Where gender assigns to women the role of washing clothes and fetching water their contact with contaminated water will place them at greater risk than the men in their communities. Where men are more exposed, as through fishing, they will be at greater risk than women. Regardless of exposure, the *consequences* for men and women are different. In women, schistosomiasis has been associated with infertility, abortion, pre-term delivery and life-threatening conditions such as extra-uterine pregnancy. Female genital schistosomiasis (FGS) has been associated with increased vulnerability to HIV infection and studies are currently underway to verify this association. Because the symptoms of urinary and genital schistosomiasis may sometimes be confused with sexually transmitted diseases, there may be stigma associated with infection such that women either delay going to the health service or they consult traditional healers.

Leishmaniasis, onchocerciasis and lymphatic filariasis are all parasitically- induced diseases which also have different consequences for men and women. For example, hydrocoele, the genital *manifestations* of lymphatic filariasis in men, presents as a chronic swelling of the scrotum and affects about 27 million men. The experience of the disease is significantly influenced by gender. Detection is difficult, as hydrocoele is associated generally with sexual disability and lowers the productivity and



wage-earning capacity of those afflicted. Likewise, the experience of leishmaniasis, onchocerciasis and leprosy is gendered as all are disfiguring infections, affecting the responses that the affected man or woman elicits from others with whom he/she comes into contact. Women may depend more on their physical appearance to enhance their prospects for marriage and sustaining a partnership with a male.

Studies in a number of different regions of the world indicate that both cutaneous and visceral leishmaniasis (as with tuberculosis) are more likely to be detected in men than women through passive case finding (Velez et al, 1996; Prabbahar, 1992); through active case finding females are detected with much greater frequency. In the case of cutaneous leishmaniasis, the disease is not permanently incapacitating and women responsible for home management, are more likely to consult a traditional healer than men, who are more likely to be detected and treated in the health centers. For this reason, in reports by health services men appear to be most at risk, possibly not providing the full epidemiological picture.

Onchocerciasis, or river blindness, infects 18 million people mostly in West Africa. This disease provides an interesting example of how sex and gender interact to elicit a different response from the health system depending on whether men or women are affected. In the case of onchocerciasis, women often were excluded from receiving the treatment drug ivermectin on the basis of their reproductive function, when such exclusion was not warranted. The Special Programme for Research and Training in Tropical Disease (TDR) proved that the drug ivermectin could prevent the disease with one tablet a year. However, Merck & Co., the pharmaceutical company that developed ivermectin, recommended that pregnant women and mothers breast-feeding newborns should be excluded from treatment until they were no longer pregnant or breast-feeding, at which time they should receive treatment. In endemic areas, this represents up to 30% of women. A TDR-sponsored study (Yumkella, 1996) found that women who had been excluded for these reasons did not seek treatment once they became eligible for it. Many cited the high cost of transportation, but the majority noted that they did not know where to get treatment and preferred to wait for the mass campaign. By the time such a yearly campaign was undertaken they were again pregnant or breast-feeding. Repeated exclusion from treatment allows these women to become a reservoir for disease transmission.<sup>12</sup>

This section has attempted to provide an overview of the impact of gender on communicable diseases. There are many diseases that have not been included in this discussion that have significant gendered implications in the way they are contracted and experienced. Trachoma, for example, is more prevalent in women than in men and has an important gender dimension. Diarrhoeal disease, one of the major killers of children in the developing world, has generated a considerable amount of social science research. Such research has focussed on detecting the degree to which women's productive and reproductive roles are precipitating or protective factors for their offspring's diarrhoea, and to explore



how women can be called upon again to manage these diseases.<sup>13</sup> The main objective of this review has been to stimulate the reader to begin to apply a gender perspective to examine the health-illness-care process related to infectious diseases.

## COMMUNICABLE DISEASES, GENDER AND HEALTH EQUITY

The fact that communicable diseases continue to afflict men and women living in marginalized situations, despite great technological and scientific advances represents a growing inequity between population groups worldwide. The lack of understanding of gender is at the root of such inequities. There is lack of recognition that gender and poverty interact to place women in particular at health risk. This in turn is reflected in taxonomies for organizing our thinking about communicable disease that leave gender out while the outmoded stereotypes used in infectious disease research and control tend to presume that gender is understood. The influence of these stereotypes in relation to infectious disease and gender is itself a health hazard. Three such stereotypes illustrate this point:

The first has to do with *providing equal treatment for men and women when respective needs are not equal*. Medical research in infectious diseases is replete with examples of drug indications that have been derived on the basis of clinical trials with only male subjects. The second stereotype is reflected when *different treatment is provided to men and women when the need may not be different*. An example of this has been discussed in relation to the exclusion of pregnant and breast-feeding women from ivermectin treatment for onchocerciasis, even though no adverse effects are known in confirmatory studies. The third, when infectious disease prevention and control programs *reinforce gender stereotypes that have a negative impact on physical and mental health*. The exclusive focus within interventions on mothers, entrusting to them the sole responsibility of discharging basic strategies for their children's health, reinforces the stereotype that women "do not work", have "free time", and are of interest for health interventions primarily as vehicles to gain access to other family members.

Throughout this document the emphasis has been on gender as more than a variable and as a construct that underpins the way health sciences and the health system are organized. A sea change must occur in the study and control of communicable diseases. Social and behavioral scientists have long argued that these diseases will not be eradicated without attention to fundamental social inequalities. This paper has sought to demonstrate that the interaction between poverty and gender presents the greatest risk of dying or becoming ill from infectious diseases, emerging or re-emerging. We must respond to new and old challenges wearing lenses that will help expand our view of disease and wellness. Those lenses should enable a focus on the gender aspects of infectious disease.



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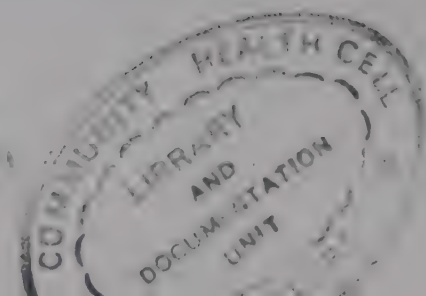
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## ENDNOTES

<sup>1</sup> In this paper, gender refers to the roles that men and women play and the power relations between them that place either sex at an advantage/disadvantage over resources. As a category of social analysis, gender has a number of elements which include: i) contextual specificity, ii) modifiability over time, iii) socially structured values and beliefs that structure career choices and professions, legislation, organizational models, religions, and so on.

<sup>2</sup> In this chapter, "communicable" and "infectious" are used interchangeably.

<sup>3</sup> There are a number of taxonomies that are used to classify infectious diseases, including whether the causal agent is viral, bacterial or parasitic. We have opted for the classification which refers to existing, emerging, and re-emerging diseases, in part because an infectious disease, for example, diarrhoeal disease, may be caused by a virus, bacterium or parasite.

<sup>4</sup> Average flow of FDI to developing countries was about US\$11 billion between 1980-86; US\$42.6 billion in 1992, and over US\$50 billion in 1997.

<sup>5</sup> On July 21<sup>st</sup>, 1998, Dr. Gro Harlem Brundtland took office as the new Director General of the World Health Organization. Using the theme "making the difference", she has launched a worldwide effort to "Roll Back Malaria", calling on private and public sectors to pool their comparative advantages to dramatically reduce child mortality due to malaria.

<sup>6</sup> The biophysical environment is understood as including both the natural and constructed (or "built") life space in which men and women carry out their activities. It includes both natural and built elements such as trees, water sources, mosquitoes, houses, smokestacks, factories and streets.

<sup>7</sup> For a comprehensive review of the failure of global malaria eradication efforts of the mid 20<sup>th</sup> century, see Brown's article, 1997, cited in references.

<sup>8</sup> A New York Times article confirms this point. In a recent headline entitled *AIDS is Slashing Africa's Population*, *U.N. Survey Finds* (Oct. 28, 1998), Youssif Ibrahim reports that the UN document substantiates that "AIDS ... will effectively reduce (Africa's) population within the next 15 to 20 years, with dramatic slashes in life expectancy in 34 sub-Saharan countries, where 91% of AIDS deaths occur". The article goes on to say that ***"Despite the enormity of the problem affecting Africa, attention seems to have shifted from the disease, largely because it seems to have been contained in the advanced industrialized nations"***.

<sup>9</sup> In her groundbreaking work entitled In a Different Voice: Psychological Theory and Women's Development, Gilligan illustrates how women's and men's psychological development is significantly affected by gender roles and relations.

<sup>10</sup> Chlamydia is the fifth leading cause of disability-adjusted life years (DALYs) for women in the developing world.

<sup>11</sup> Chagas disease affects 17 million people in Latin America. Congenital Chagas disease transmission has been ignored by both health services and by women themselves. Chagas disease, for which many kinds of wild and domestic animals act as hosts, occurs in urban settings mainly among poor families who migrate from endemic areas to the cities to look for work.

<sup>12</sup> Ironically, at the time of this study, 27 women had been treated inadvertently with ivermectin during their first trimester of pregnancy. No negative effects were found on follow up, and Merck now recommends that ivermectin be made available to pregnant women during mass treatment campaigns when the risk of complications from untreated onchocerciasis exceeds the potential risk to the fetus from treatment. Similarly, nursing mothers can be given the drug only if the benefits outweigh the potential risk to the breast-fed infant.

<sup>13</sup> See, for example, Journal of Diarrhoeal Disease Research, published by the International Centre for Diarrhoeal Disease Research, Bangladesh.



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